The Smart Mask

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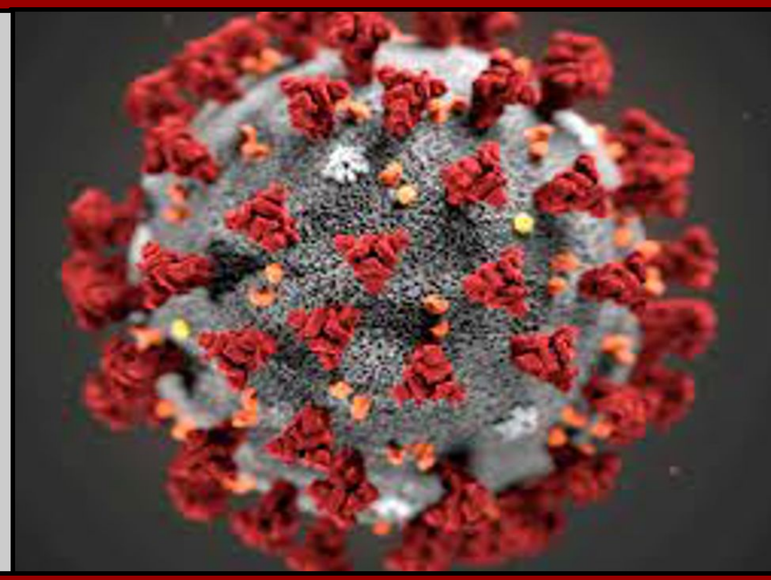
Abstract

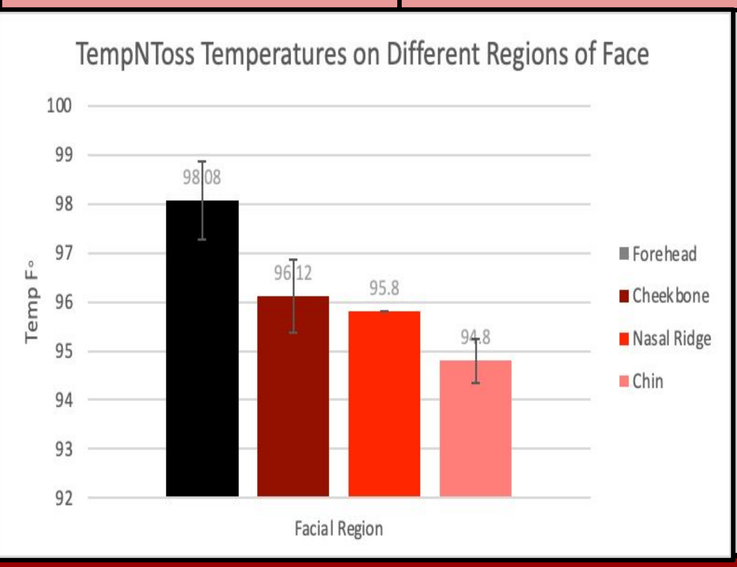
The SmartMask is an innovative way to combine testing methods, technology, and masks in order to combat the spread of COVID-19. Ideally, down the line, this technology could be applied to other viruses or pandemic situations. In order to do this, the team spoke with an expert, tested multiple masks, temperature strip placements, and construction methods.

Introduction

COVID-19 is a respiratory virus that began its spread in late December of 2019. It quickly spread and had an astronomical on daily life through mask mandates, mandatory testing, stay at home orders, and eventually the vaccine development. To date, there have been 503,131,83 cases globally (WHO 2022). It has been found that masks can filter 95% of virus particles out of the air (WebMD 2021). Additionally, the CDC has stated that the early detection of COVID through symptoms and testing plays a significant role in preventing further spread of the virus.



	Methods	Results
Masks	KN95 masks were tested and chosen due to increased efficacy of filtering viral particles. It also provided more structure for the new technology..	Research shows that N95 masks are better at protecting from COVID-19 than surgical masks. N95 and K95 masks have a 95% particle capture rate making it the better option.
Temp n' Toss	Temp n' Toss strips were tested on the cheek and nose in comparison to the recommended forehead placement.	The cheekbone not only returned accurate data that was similar to forehead measurements, but maintained accuracy once placed on our mask prototype.
Conjugate Pad	Cellulose pads were tested to collect and retain sputum for diagnostic purposes.	Our conjugate pads were successfully implemented onto the mask and was able to retain liquid water for multiple hours.



Conclusion

Due to the efficacy of N95 it was utilized along with cheek placement of the Temp n' Toss stip. The cellulose pads were effective in collecting sputum and will be tested using a COVID test in our next steps.

Looking to the Future

While great achievements have been made in regards to COVID, the goal of this project was to begin development of wearable technology that could be implemented in settings that still require masks such as hospitals. Additionally, the future forms of this mask could be implemented in prospective public health crises.

Acknowledgements

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Works Cited

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